inorganic filler 6f is arranged on the board side, the insulating resin sheet body of a two-layer structure can be formed by a process reverse to the above, i.e., by forming the second layer on the base film and thereafter forming the first layer on the second layer. By cutting the insulating resin sheet body every specified dimension, there is an insulating resin sheet 6 as shown in Fig. 63B, Fig. 64B and Fig. 66.

The insulating resin 306m in which the density of the inorganic filler 6f is low or no inorganic filler 6f is contained is once applied and dried (sometimes omitted), and an insulating resin mixed with a greater amount of the inorganic filler 6f than that of the first layer is applied onto the first layer and dried (sometimes omitted). The third layer in which the amount of the inorganic filler is smaller than that of the second layer or no inorganic filler 6f is contained is applied onto the layer. By drying this, there can be formed an insulating resin sheet body of a three-layer structure in which the first layer, the second layer, and the third layer are formed on the base film. By cutting the insulating resin sheet body every specified dimension, there is an thermosetting resin sheet 6 as shown in Fig. 63C, Fig. 64C and Fig. 67A.

According to the method for forming the insulating resin layer directly on the circuit board 4, the

resin material most appropriate for the electronic component is selected and arranged on the electronic component side of the insulating resin layer on a side of manufacturing the electronic component unit, while the resin material most appropriate for the board can be selected and arranged on the board side, allowing the degree of freedom of selecting the resin can be improved.

In contrast to this, according to the method of manufacturing the insulating resin sheet body, a lot of the thermosetting resin sheets 6 can be collectively manufactured although the degree of freedom of selection is less than the above-mentioned case. This leads to a satisfactory manufacturing efficiency and an inexpensive cost and needs only one sticking device.

As described above, according to the aforementioned embodiments of the present invention, many processes that have conventionally been needed for bonding the electronic component of, for example, an IC chip to the circuit board can be eliminated, and the productivity can be remarkably improved. That is, in the case of, for example, the stud bump bonding and the solder bump bonding described as prior art examples, it is required to inject an encapsulating material after flip chip bonding and put the board in a batch type furnace to perform hardening. A time of several minutes per unit is required for the

injection of the encapsulating material, and a time of two to five hours are required the hardening of the encapsulating material. The stud bump bonding mounting further needs a process for transferring Ag pastes to the bumps as pre-processing, mounting this on a board and thereafter hardening the Ag pastes. Two hours are required for this process. In contrast to this, according to the methods of the aforementioned embodiments, the encapsulating process can be eliminated, allowing the productivity to be remarkably improved. Furthermore, according to the aforementioned embodiments, employing the solid or semi-solid insulating resin encapsulating sheet allows the employment of, for example, epoxy resin of a great molecular weight, allows the achievement of bonding in a short time of about 10 to 20 seconds, allows the reduction in bonding time and allows the productivity to be further improved. When the thermosetting resin sheet 6 or the thermosetting adhesive 306b, which has no conductive particle as a bonding material, is employed, there is no need for adding conductive particles into the insulating resin by comparison with the method described in connection with the second prior art. Therefore, an inexpensive IC chip mounting method and apparatus can be provided.

Furthermore, the following effects can be produced.